REMARKS

Claims 16-22, 26-28 and 42-46 are pending in the present application. Claims 16 and 42 have been amended. Claims 25, 29-35 and 39-41 have been cancelled without prejudice. Support for the claim amendments can be found in previously pending claim 25. Support for the new claims can be found in the specification, especially Fig. 3. Accordingly, applicants respectfully submit that no new matter has been added.

Objections to the Drawings

Applicants have amended the specification to include headings as suggested by the Patent Office. Applicants respectfully request reconsideration of the objections to the specification.

Objections to the Drawings

Applicants submit herewith, on a separate sheet, a proposed revision of Fig. 3, showing the z-direction, which defines the directional orientation of the claimed "z-sections" and which more clearly identifies the "movement" of the claimed "axially movable objective." Applicants respectfully submit that a person of ordinary skill in the art knows the structure associated with an "axially movable objective," and that such an objective is moveable up and down the z-axis, which is understood in microscopes to be perpendicular to the plane of the sample. Thus, with such an objective, z-sections would be understood to refer to different images depending on the up or down focus position of the movable objective (i.e., a stack of images corresponding to different objective positions along the z-axis). This revision of Fig. 3 is fully supported by the specification at page 5, lines 1-4. Accordingly, applicants respectfully submit that no new matter has been added and request reconsideration of the drawing objection.

Claim Rejections Under 35 U.S.C. § 112, first paragraph

In the Office Action, claims 41-42 were rejected under 35 U.S.C. § 112, first paragraph containing subject matter which was not enabled in the specification. Applicants note that the Office Action, at page 4, item no. 6, mentions both § 112, first and second paragraphs. Accordingly, if applicants' assumption -- that the rejection identified in item no.

6 of the Office Action refers only to a § 112, first paragraph rejection -- is incorrect, the Patent Office is requested to further clarify the specific rejection intended to be set forth.

Claim 41 has been canceled without prejudice, rendering that rejection moot. With respect to the rejection of claim 42, applicants respectfully traverse the rejection for the following reasons. The present specification, in particular the description at pages 2 and 3 and Fig. 3, provides sufficient description to one of skill in the art to make or practice the claimed invention without undue experimentation because, e.g., Fig. 3 shows that the prism 2 can be rotated to a plurality of angles, thus the image of the object can be rotated as viewed by the detector 12 without having to rotate the sample. The specification at page 4, line 18, further refers to the prism as a "rotor," which is defined as a "rotating part of an electrical or mechanical device." Webster's II New College Dictionary, 2001 edition. As it would be apparent to one skilled in the art given the description, such measurements at different rotation angles can be compared to a scale or reference on a monitor (for example, as viewed through detector 12). A person of ordinary skill in the art based on the teachings of the present description could implement the claimed prism to provide measurements at a plurality of different angles without undue experimentation.

Accordingly, applicants respectfully request reconsideration of this rejection.

Claim Rejections Under 35 U.S.C. § 112, second paragraph

Claims 27-28 and 39-40 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 39 and 40 have been cancelled without prejudice, rendering those rejections moot. With respect to claims 27 and 28, applicants submit that, a person of ordinary skill in the art, given the present description, would understand that the term "Z-sections" refers to different images depending on the up or down focus position of the movable objective (i.e., a stack of images corresponding to different objective positions along the z-axis). As mentioned above, the claimed "axially movable objective" refers to an objective that is moveable up and down the z-axis, which is understood in the microscope art to be perpendicular to the plane of the sample. This direction is further clarified in the proposed drawing change to Fig. 3.

Accordingly, applicants respectfully request reconsideration of these rejections.

Claim Rejections Under 35 U.S.C. § 102(b)

In the Office Action, Claims 29-31 and 41, as best as understood, were rejected under 35 U.S.C. §102(b) as being anticipated by Yoshinaga et al. (USP 4,832,474). These

rejections are now moot, given that claims 29-31 and 41 have been canceled without prejudice.

Claims 16-18, 25-26 and 42, as best as understood, were rejected under 35 U.S.C. §102(b) as being anticipated by Ito et al. (USP 4,650,335). Applicants traverse these rejections for the following reasons.

First, Ito fails to disclose a "confocal" microscope as claimed. The "confocal microscope" is positively recited in the body of independent claims 16 and 42. Accordingly, Ito cannot anticipate these claims.

Second, the Patent Office, in its rejection of these claims, fails to point out where in Ito the claimed "tube lens" is disclosed. As such, the Patent Office has failed to set forth a proper rejection under §102(b).

Third, Ito teaches an ocular 17, a laser scanner (1, 2, 3, 4, 5, 18, 19, and 26), a scanning mirror 3, and a rotatable optical system 6. Assuming, *arguendo*, that Ito discloses the claimed "tube lens," Ito fails to disclose "wherein the rotatable optical system for image rotation serves to rotate all scanning and video images fed through the laser scanner into the microscope" (claims 16 and 42). The above feature recited was recited in previously pending claim 25, now cancelled without prejudice.

In a confocal scanning microscope, the scanning mirror is positioned in a conjugate plane and between the scanning lens and the tube lens (see e.g., Fig. 3 of the application) and an intermediate image of the scanning mirror is generated. In contrast, Fig. 1 of Ito clearly shows the scanning mirror 3 is <u>not</u> in a conjugate plane. Rather, the condensor 4 is positioned in the conjugate plane of the line sensor 19 (see col. 3, lines 4 to 8). In Ito, the sample is scanned and the scanning mirror swings in the direction of the line sensor. In order to provide a measurement on a scanned area in the Y-direction, the image inverter 6 provides a discrete rotation in order to achieve the desired measurement. Thus, Ito's device cannot apply a measurement with a scan. In addition, the sample to be measured by Ito's device must be oriented on the stage with respect to the X- and Y-axis (see Ito, col. 3, lines 21 to 23).

Since Ito's scanning mirror swings in the direction of the line sensor, the scanning beam moves on the sample surface in a direction which is, as well, parallel to the line sensor 19. Consequently, for measurement purposes of features oriented perpendicular to the scanning direction, in Ito there is no need to rotate the image. In case the features parallel to the scanning direction need to be measured, only a discrete rotation of the image inverter is required.

In contrast, the claimed invention recites a "confocal microscope" that can use all rotation angles of the rotatable optical system and therefore can measure "all" recited images. For example, the embodiment shown in Fig. 3 of the present application illustrates the principle of a confocal scanning microscope. The object is scanned by a point like scanning beam and the light coming from the sample is directed point by point to the detector. All the light points from scanned object constitute the visual image. Thus, all of the images or partial images or point like images can be rotated in order to achieve a complete rotated image.

Accordingly, for at least the above reasons, applicants respectfully submit that claims 16-18, 25-26 and 42 are not anticipated by Ito.

Claim Rejections Under 35 U.S.C. § 103(a)

In the Office Action, claim 32 was rejected under 35 U.S.C. §103 as being unpatentable over Yoshinaga et al. in view of Wasmund et al. (USP 4,181,436). Claim 19 was rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. in view of Wasmund et al. Claims 33-35 were rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshinaga et al. in view of the Japanese reference No. 8-334698. Claims 20-22 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. in view of the Japanese reference No. 8-334698. Claims 39 and 40 were rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshinaga et al. in view of Hasegawa (USP 5,270,855). Claims 27 and 28 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. in view of Hasegawa. Applicants respectfully traverse these rejections for the following reasons.

Claims 32-35 and 39-40 have been cancelled without prejudice, rendering those rejections moot.

Concerning claim 19, the Ito/Wasmund combination, neither reference teaches or suggests the "confocal" microscope as claimed, or a "rotatable optical system for image rotation [that] serves to rotate all scanning and video images fed through the laser scanner into the microscope." Accordingly, claim 19 is patentable over the cited combination.

Concerning claims 20-22, the Ito/JP '698 combination does not teach or suggest the claimed invention for at least the reasons discussed above. In addition, as best understood, JP '698 fails to teach or suggest the "confocal" microscope as claimed, or a "rotatable optical system for image rotation [that] serves to rotate all scanning and video images fed through the laser scanner into the microscope." Accordingly, claims 20-22 are patentable over the cited combination.

Concerning claims 27 and 28, the cited Ito/Hasegawa combination does not teach or suggest the claimed invention for at least the reasons discussed above. In addition, Hasegawa fails to teach or suggest the "confocal" microscope as claimed, or a "rotatable optical system for image rotation [that] serves to rotate all scanning and video images fed through the laser scanner into the microscope." Accordingly, claims 20-22 are patentable over the cited combination.

Accordingly, for at least the above reasons, applicants respectfully submit that claims 19-22 and 27-28 are patentable over the art of record.

New Claims 43-46

New claims 43- 46 recite further features that are not taught or suggested by the cited art. For example, claims 43 and 45 recite "excitation" and "detection" pinholes, further defining the structure of the claimed "confocal" microscope. Ito does not disclose, teach or suggest such a structure, for the reasons mentioned above. In addition, claims 44 and 46 recite "the scanning mirror directs a rotated image to a detector." In contrast, Ito's scanning mirror (See Ito Fig. 1) only directs scanning light to the sample, not the return light to the detector. Ito does not disclose, teach or suggest such a structure, for the reasons mentioned above.

Accordingly, applicants respectfully submit that new claims 43-46 are patentable over the art of record for at least the reasons mentioned above.

Thus, for at least the reasons mentioned above, applicants respectfully submit that all of the pending claims are allowable.

Conclusion

If applicants have not accounted for any fees required by this Amendment, the Commissioner is hereby authorized to charge to our Deposit Account No. 19-0741. A ONE MONTH petition for an extension of time is submitted herewith. If applicants have not accounted for a required extension of time under 37 C.F.R. § 1.136, that extension is requested and the corresponding fee should be charged to our Deposit Account.

The Examiner should feel free to contact the undersigned at (202) 672-5592, if there is anything the undersigned can do to assist the Examiner or expedite prosecution of the application.

Respectfully submitted,

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Version with Markings to Show Changes Made (Claims)

16. (Four Times Amended) A confocal microscope defining a path of rays and comprising an ocular, a tube lens and a rotatable optical system for image rotation disposed in the path of rays of the confocal microscope, wherein the rotatable optical system is disposed between a scanning lens and a scanning mirror of a laser scanner in the path of rays of the confocal microscope, wherein the rotatable optical system for image rotation serves to rotate all scanning and video images fed through the laser scanner into the microscope.

42. (Amended) A confocal microscope defining a path of rays and comprising:

an ocular;

a tube lens; and

a rotatable optical system for image rotation disposed in the path of rays of the confocal microscope, wherein the rotatable optical system is disposed between a scanning lens and a scanning mirror of a laser scanner in the path of rays of the confocal microscope, wherein the rotatable optical system for image rotation serves to rotate all scanning and video images fed through the laser scanner into the microscope, and wherein an object is measurable from a plurality of angular positions without physical rotation of the measured object.